

## REMARKS

The application is to be amended as previously set forth in an effort to improve antecedent basis and conform more closely to U.S. practice. All amendments are made without prejudice or disclaimer. The amendments and cancellations do not surrender any scope of any amended claim and do not constitute new matter. Additionally, for the convenience of the Examiner, applicants have included the previously submitted remarks.

### Claim Objections

Claims 1 and 5-8 stand rejected for reciting non-elected subject matter. Claim 8 has been canceled, and the remaining claims have been appropriately amended. Accordingly, applicants respectfully request withdrawal of the claim objections.

### 35 U.S.C. § 112

Claim 2 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for lacking antecedent basis. Claim 2 has been appropriately amended; therefore, applicants respectfully request withdrawal of the 35 U.S.C. § 112, first paragraph rejection.

Claims 1-2, 4-8, 12-13, and 16 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being enabled by the specification. Specifically, the Office alleges that the specification does not reasonably provide enablement for *Triticeae* plants. Office Action, page 3. Claims 4, 8, and 16 have been canceled; thus, rendering the rejection of those claims moot. Applicants respectfully traverse the rejection of the remaining claims.

Applicants have amended claims 1, 2, 5-7, 12, and 13 from “a barley or related *Triticeae* plant” to recite, in part, a barley. Additionally, claims 1, 2, 5-7, 12, and 13 have been amended to include the molecular marker comprising the nucleotide sequence set forth in any of SEQ ID NOs: 1 to 5.

Applicants respectfully submit that the presently amended claims are adequately enabled by the specification. Indeed, the Office acknowledges such enablement. The Office Action states, “...the specification, while being enabled for a method of identifying row type barley using... the nucleotide sequences of SEQ ID NOs: 1-5...” *See, e.g.* Office Action, page 3.

Additionally, the Office alleges that the specification does not teach a method of

generating an artificially altered barley or Triticeae plants. Applicants respectfully disagree and note paragraphs [0090] through [0102] teach generating artificially altered barleys and include examples of multiple types of artificially generated barleys. *See, e.g.*, paragraphs [0090] through [0102] of the Published Specification.

Applicants submit that the presently amended claims are enabled; and therefore, respectfully request withdrawal of the 35 U.S.C. § 112, first paragraph rejections.

### **35 U.S.C. § 102/103**

Claims 17-18, 21-23, 28, 31-32, and 37-39 stand rejected under 35 U.S.C. § 102 (b) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103 (a) as allegedly obvious over each of Jui et al. (Theor. Appl. Genet (1997) 94:549-656; hereinafter ‘Jui’) and Komatsuda et al. (genome (1999) 42(2): 248-253; hereinafter ‘Komatsuda’). Claims 17-18, 21-23, 28, 31-32, and 37-39 have been canceled, thus rendering the rejection moot.

Applicants respectfully request clarification with regard to Komatsuda. The Office alleges that Komatsuda was cited in and/or part of Applicants’ IDS (*see*, Office Action at 6). Applicants request clarification, as applicants believe that Komatsuda was not included in any IDS submitted by the applicants. Additionally, applicants were unable to locate Komatsuda as a non-patent literature (NPL) document on PAIR.

Applicants additionally respectfully request clarification with regard to Jui. While the Office cited Jui in the notice of references cited, the Office provided no reference copy. Rather, the Office provided applicants with Komatsuda et al. (Theor. Appl. Genet (1997) 95:637-642; hereinafter ‘Komatsuda 1997’).

As Komatsuda and Komatsuda 1997 were cited and/or provided by the Office, applicants kindly request that the Office note Komatsuda and Komatsuda 1997 on Form PTO-892, the notice of references cited.

Claims 1-2, 4-8, 12-13, 16-18, 21-23, 25, 28, 31-32, and 37-3[9] stand rejected under 35 U.S.C. § 102 (b) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103 (a) as allegedly obvious over Komatsuda and Tanno et al. (Theor. Appl. Genet (2002) 104:54-60; hereinafter “Tanno”). Applicants request clarification as to the rejection of claims “37-3.”

Applicants assume the Office is referring to claims 37-39. Claims 8, 16-18, 21-23, 25, 28, 31-32, and 37-39 have been canceled, thus rendering the rejection of those claims moot. Applicants respectfully request clarification with regard to the Applicants respectfully traverse the rejection of the remaining claims.

With regard to the § 102(b) rejection, applicants note that a claim is only anticipated if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Applicants respectfully assert that claims 1-2, 4-7, and 12-13 cannot be anticipated by Komatsuda or Tanno, as neither reference discloses each and every element of the claims.

The presently amended method claims recite, in part, using at least one molecular marker comprising the nucleotide sequences set forth in any of SEQ ID NOs: 1 to 5. No where in Komatsuda or Tanno is there any disclosure of using such molecular markers. As such, the rejected claims cannot be anticipated by Komatsuda or Tanno.

With regard to the § 103(a) rejection, to be obvious, the prior art itself or “the inferences and creative steps that a person of ordinary skill in the art would [have] employ[ed]” at the time of the invention are to have taught or suggested all of the claim elements. Additionally, there must have been “a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 167 L.Ed.2d 705, 75 USLW 4289, 82 USPQ2d 1385 (2007). The amended method claims are not obvious, as not all claim elements are taught or suggested by Komatsuda or Tanno.

The Office alleges that the previously claimed barley/plant seeds are indistinguishable from those disclosed in Komatsuda or Tanno. Applicants respectfully note that the amended claims are directed to methods of identifying row type in barley seeds using a novel set of molecular markers (SEQ ID NOs: 1-5). As noted previously, Komatsuda and Tanno do not disclose, teach, or suggest the claimed molecular markers. As such, even in the event that the barley seed were similar, which applicants dispute, the claims are directed to a method using the novel molecular markers for identifying a barley type. Indeed, MPEP § 2116.01 states that all elements of a claim must be considered when weighing the differences between the claimed invention and the prior art in determining the obviousness of a process or method claim. See,

MPEP § 2116.01.

Additionally, the Office alleges that any difference between the previously submitted claims were “due to routine optimization methods and of minor morphological variation in the plants/seed.” Office Action at 10. Again, applicants respectfully note that the amended claims are directed to methods of identifying row type in barley seeds using a novel set of molecular markers (SEQ ID NOs: 1-5).

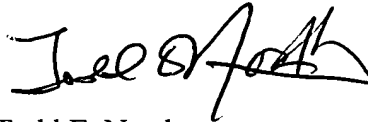
Further, applicants respectfully note that the standards for obviousness based on “routine optimization” or using routine or known methods require an element of predictability. *See, e.g.*, MPEP §§ 2143, 2143.02. The Office states that the state of the art in the assignment of molecular markers to particular traits is unpredictable within the same species.” *See, e.g.*, Office Action at 5. Therefore, any potential optimizations, minor morphological variations, and/or potential molecular markers assigned to those variations would, at best, be unpredictable when considering the barley/plants seeds and any molecular markers in Komatsuda and Tanno. As such, it would not have been obvious to modify Komatsuda or Tanno to practice the claimed methods.

Applicants respectfully assert that the presently amended claims are not anticipated by, and/or in the alternative, obvious over Komatsuda or Tanno. Accordingly, applicants respectfully request withdrawal of the 35 U.S.C. § 102/103 rejections.

In light of the foregoing amendments and remarks, applicants believe that the application should be in condition for allowance. If questions should remain after consideration of the foregoing, however, or if the Office should determine that additional issues exist that might be resolved, the Office is kindly requested to contact applicants’ attorney at the address or telephone number given herein.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Todd E. North", with a stylized flourish at the end.

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